Productivity, Supply/Marketing Responses and Competitiveness within Environment, Climate Changes and Water Resources Challenges

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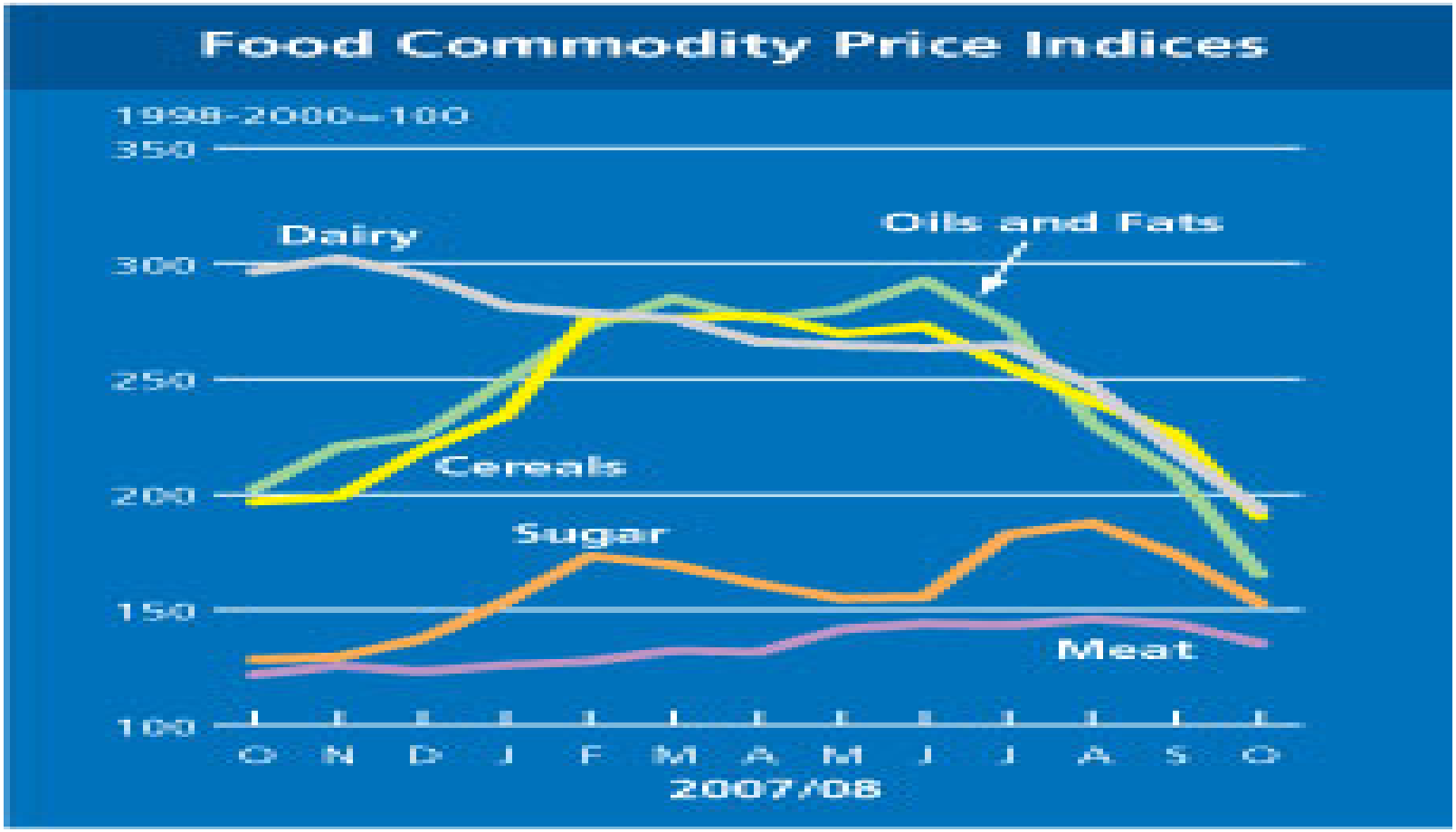
Contents

- Coping Modalities to the Recent International Market Developments
- The Proposed Research Framework
- The Priority Sub-Programmes

FAO FOOD PRICE INDEX

COMMODITY PRICE INDICIES



The Twin Track and the Corresponding Research Programme Approach …

FAO, IFAD and WFP (endorsed by the WB) have advocated for a twin track approach as an overall strategic framework for fighting hunger and as a highly relevant measure in the current context of high/ fluctuating food prices. The twin tracks are equally critical and mutually reinforcing:

- **One track aims at promoting the supply response of the agricultural sector, particularly amongst smallholders, and the development of rural areas through appropriate incentives and investments in public goods. The objective is to increase food supplies and to enhance the income-generating capacity of agriculture and the rural economy as a means of promoting overall rural development. For policies to significantly reduce poverty, a strong focus on the productive capacity of smallholders is crucial.**

- **The other track aims to ensure immediate access to food by the poor and vulnerable in both rural and urban areas by providing safety nets and social protection measures.**

An Opportunity or a Threat …..?

Agriculture … re-gaining recognition as a leading sector and key for poverty reduction … and now m*ore calls for enhancing investment*

Most of the poor .. are under-nourished or food insecure … and mostly in rural areas … depending on agriculture and larger share of their income is spent on food

Agriculture…has good multiplier effect (WB – If 20% contribution- 10% increase in value of ag production leads to 13% increase in non-ag; IFPRI in NA $1 increase in agricultural production generates on average $3.12)

Agriculture and non-agriculture development reinforce each other

The changing argument in sustainable agricultural and rural development paradigm AFTER the Crises *"Agriculture, and food security are essential to economic growth and poverty reduction"*

The Concept of Packaging …Examples of Coping Policies

Strengthen Food Production and Incomes	Policy Environment	Access and Social Safety Nets	Food Safety	Nutrition
-**Low-cost, simple technology** ***Rural infrastructure Improved irrigation and soil fertility** ***Natural resource management** ***Market and private sector development** ***Market Smart fertilizers Subsidies** ***Investment in agriculture** ***Reuse of agricultural Residues-(income; cost of fertilizers; value added employment; women environment;; etc)** ***Water efficiency and high value crops** ***Competitiveness**	***Production policy (agricultural research policy, extension policy,** ***credit policy, land tenure, land resource management, etc.);** ***consumption policy (food policy with target groups, equity, gender demographic policy, food security stocks etc);** ***international and Intraregional trade Policy (imports, exports)** ***marketing policy (processing, storage, pricing).** ***Risk management (Insurance; stocks)** ***Institutions** ***Strategic Partnership**	**-improving access to food for the chronically hungry and most vulnerable through:** -creating off-farm employment opportunities by facilitating private enterprise development (small business credits, business management training, vocational training, work placement services; ag residues); *Safety Nets *Emergency – provide direct access to food *Mother and Infant feeding *School meals *Unemployment and pension benefits *Food-for-work and food-for-education *Targeted conditional cash transfers *Soup kitchen and factory Canteens *Food banks *Food Bags	**Food safety is essential for the health of consumers. For example:** **-Implementing Hazard Analysis Critical Control Point (HACCP) system to improve the hygiene.** **Pesticide residues, Aflatoxin levels of cereals, dried fruits and nuts, etc.** **-Codex Alimentarius; WTO-SPS** **-Proper import inspection is needed to avoid that contaminated foods reach Consumers.** **Improving food added advantage that it helps reduce food losses or even avoid them. In short, improved safety of food can contribute to increased availability of food.** **-Laboratories; human; infrastructure.**	-A healthy diet is in the first place based on cereals and root crops, supplemented by fruits and vegetables. A healthy diet should also include moderate amounts of milk and dairy products, meat, fish or meat/milk alternatives, and limited amounts of foods containing fat or sugar. -No single food can provide all the essential nutrients that the body needs. Therefore, it is important to include a wide variety of foods in FS plans to provide adequate intakes of proteins, vitamins, minerals and dietary fibre, which are important for health. -Implications on household coping strategies -To be considered in assessing subsidy options

The Proposed Research Framework

I. **Food Security and Nutrition**

2. **Food Subsidies**

3. **Productivity, Supply/Marketing Responses and Competitiveness**
   1. Responses and Competitiveness of Agriculture
   2. Reducing Post-Harvest and Marketing Losses
   3. Enhancement of Investment in Agriculture

4. **Environment, Climate Changes and Water Resources**
   1. Water Resources (Quantities; Quality; Efficiency)
   2. Climate Changes (assumptions and implications)
   3. Agricultural Residues (Information; Implications; Solutions for value added)

5. **Risk Management in Agriculture**
   1. **Agricultural Insurance**
   2. **Early Warning Systems**
   3. **Strategic Stocks Management**
   4. **Future Trading/ Commodity Exchanges**

6. **Institutional Reform and Capacity Building**

For this session …..

3. **Productivity, Supply/Marketing Responses and Competitiveness**
   - **Responses and Competitiveness of Agriculture (A prerequisite to policy formulation and analysis – Available assessment needs updating; wider representative coverage; in-depth analysis; reflection of recent global and national developments; scenarios reflecting real multidisciplinary situation)**
   - **Reducing Post-Harvest and Marketing Losses (Adequately Covered –UNIDO – WFP-FAO-IFPRI)**
   - **Enhancement of Investment in Agriculture (Adequately Covered FAO-IFPRI-WB)**

4. **Environment, Climate Changes and Water Resources**
   1. **Water Resources (Quantities; Quality; Efficiency) – cross cutting**
   2. **Climate Changes (assumptions and implications) – cross cutting**
   3. **Agricultural Residues (Information; Implications; Solutions for value added) A separate Component**

5. **Risk Management in Agriculture**
   1. **Agricultural Insurance (Strategy 2030)**
   – **Early Warning Systems (Adequately covered FAO- FIVIMS- etc.)**
   1. **Strategic Stocks Management (Current Practices – No Need)**
   2. **Future Trading/ Commodity Exchanges (Strategy 2030)**

The Proposed Sub-Programmes…

(I) Productivity, Supply/Marketing Responses and Competitiveness within the context of Water Resources, Climate Changes and Environmental Challenges.

(II) Reuse and Conversion of Agricultural Residues to Value Added Products.

(III) Agricultural Risk Management.

(I) Productivity, Supply/Marketing Responses and Competitiveness within the context of Water Resources, Climate Changes and Environmental Challenges.

With due attention to smallholders …

- **High food prices and the incentives they provide can be harnessed to re-launch agricultural growth in Egypt. This is essential not only to face the current crisis, but also to respond to the future demand for food, feed and also to avoid similar crises in the future. This will require empowering small-scale farmers, many of whom are themselves food-insecure, to expand agricultural output.**

- **Turning agricultural growth into an engine for poverty reduction requires ensuring that incentive mechanisms are in place, as well as addressing the structural constraints facing agriculture at all stages of the value chain. This calls for expanded public investment in building small farmers' asset endowments, including their access to infrastructure, technology and credit, facilitating their access to markets and enhancing their capacity to manage risks.**

- **High food prices would normally be expected to act as a production incentive. However, from January 2007 to April 2008, input prices (fertilizers and crude oil) increased more rapidly than food prices and thereby dampened the positive production incentive created by the food price increases. Small-scale farmers who are net food buyers may be particularly hurt, as the high food prices also reduce the budgets they have available to purchase fertilizers. Fertilizers subsidies may be assessed further ["Market-smart" subsidies include the use of vouchers redeemable through commercial dealers, demonstration packs to stimulate demand, and credit guarantees to encourage importers to offer credit to their dealers.]**

Multidisciplinary Aspects

Water Resources, Climate Changes and Trade

Water utilization, rationing and efficiency are of great concern in addition to Water Quality

The impacts of Climate Changes on crop productivity, crop water use, crop water productivity and farm net return have been studied by several agencies in Egypt including Ministry of Agriculture, Ministry of Environment and Ministry of Water and Public Works. The possible impacts on major crops such as wheat, maize, sorghum, soybean, barely, and cotton under different assumptions have been studied and reported (MOA-ARC). Also, the possible implications of expected rise in sea level on availability of land and water resources are well reported. These issues are of importance and special interest to any long term planning initiative for agricultural and rural development in Egypt. However, given the very long term implications and the availability of reasonable assessment being carried out by specialized international and national agencies, it may be advisable to consider this issue as exogenous variable in any envisaged analysis under this research programme.

Trade barriers represent an additional impediment to access to international markets. Policies that improve market access and reduce transaction costs may well encourage small holders to produce more for the market. The analysis will deal with tradable and non-tradable products and assets reflecting envisaged conclusions regarding trade policies and virtual water.

Major Research Questions and issues…

- Were price increases channelled/transmitted to farmers?
- Who losses and who gains from prices increases?
- Are there updated comparative advantages indicators for crops and livestock products based on ecological zones and farming systems under current international market conditions (and other exogenous factors)?
- What are the constraints and bottlenecks for enhancing production and marketing efficiency for major crops and livestock products at all stages within the value chain of these products?
- Would profitability and incentives change under different assumptions of possible climate change scenarios?
- How are the small holders and the landless affected?
- What are the production coping strategies for livestock holders under price fluctuations and possible upward increase?
- What are the impacts of major water demand management measures on incentives structure in the agricultural sector?
- What are the supply responses for major food commodities (wheat, rice, vegetable oils, sugar, corn, etc) under different subsidy schemes for inputs and outputs?

Proposed Analytical Tools

- Policy Analysis Matrix
- Value Chain Analysis
- Others

Possible Policy Implications

- **Crops/Agriculture Activities of Highest income generation impact**
- **Crops/Agriculture/Rural Activities meeting private and national/socioeconomic sustainability criterion for income generating activities**
- **Income generating activities for rural development for different income and farm size classes (farming systems and agronomic/ecological zones)**
- **Policy Scenarios regarding use of natural resources; subsidy system; farming systems; inputs availability; water challenges; environmental considerations; agricultural residues; longer term climate changes and impacts**
- **Possibilities for regional development strategy (5 ecological zones)**
- **Possibilities for trade and export promotion**

(II) Reuse of Agricultural Residues…

Agricultural Residues are SECONDARY PRODUCTS of agricultural production system.

The issue of recycling of agricultural residues and conversion to value added products is recognized to be of special importance to:

- **increase farmers income and hence possibility in investing in improving farm infrastructure, and maintenance of scarce natural resources**
- **introduce clean agriculture practices and fostering organic agriculture ,thus promoting export**
- **provide employment opportunities and creates new small agro industries in the rural areas**
- **reduce pollution and protect environment (black cloud)**
- **Generation of new and renewable energy sources like biogas, biofuel, ethanol , etc**
- **reduce production cost (reduce use of chemical fertilizers, animal feed cost etc.)**
- **assist in rationalizing water use, and**
- **enhancing women empowerment.**

Accordingly, the issue of Recycling/Conversion of Agricultural Residues to value added products is identified to be of high relevance to the sustainable agricultural and rural development and hence as one of the possible proposed research areas .

The situation of Agricultural Residues

- Annual estimates (Desk estimates based on by-products/waste per feddan or animal) reaches 59 million Tons (MT):
  - Crop Residues 33.4 (MT)
  - Animal Waste 15.5 (MT)
  - Date Palm Residues 5.3 (MT)
  - Purning Trees 4.2 (MT)
  - Slaughter houses 0.6 (MT)

- Additional I MT from food processing

Major Research Questions and issues…

- How to overcome the collection and transportation problem? How to solve the high cost of transportation? Can we have validated research based results on the optimum number, size and location of the collection/processing points to minimize transportation and handling costs?
- Is information adequate on the magnitude of the problem (including quantities, location types methods of utilization and institutions involved)?
- Is there reasonable degree of coordination among Ministries and Agencies involved? Is there a coordination between Government Research Institutes and Private Sector? How to enhance this cooperation?
- Are we using the most appropriate technologies for converting the agricultural residues? Any relevant experiences from countries with similar socio-economic and ecological conditions?
- How to deal with the seasonal availability of these secondary products?
- How to enhance capacities for outreach and extension?
- How can the Civil Society Organizations and private sector help?

Initial Expected Outputs

- Data base on distribution, types and kind of agriculture residues - plant and animals
- Socio – economic Assessment related to bottlenecks and critical constraints including the impacts of conversion of agricultural residues into value added products such as biogas , compost, feed and mushroom.
- Establishment of pilot plants to be used as demonstrations for the biogas, compost and non – traditional feed and mushroom technologies .
- Training of extension staff, farmers, women and NGOs on recycling of agricultural residues technologies .
- Enhance the capacity of farmers to use these technologies .
- Increase the availability of organic fertilizer, animal feed and biogas as a renewable energy source at the village level.
- Disseminate the technologies of biogas , compost , animal feed and mushroom .

Proposed Analytical Tools

Information System

Transportation/Trans-shipment Modeling

Biological Experiments and Piloting

Extension and Outreach

(III) Agricultural Risk Management

The soaring international food prices followed by the most recent decline in international prices necessitates giving due attention and prioritize issues pertaining to market stabilization and market-based risk management.

- Intend to provide producers and the Government with the tools to reduce the impact of production and market risks on farm income and market distortions.
- Risk management tools developed in the West are not available to the farmers in Egypt (or in the Near East and North Africa Region).
- Initiatives have started in Egypt with the intention to reduce the impact of unexpected drops in income due to output price fluctuations, input cost increases and physical losses in commodity production.

(i) Agricultural Insurance (Takaful)

Agricultural insurance permits reduction in risk costs by spreading risks in three ways: (1) among farmers; (2) to other sectors of economy; and (3) over time.

Innovations of agricultural insurance products and schemes include:

- **Revenue insurance;**
- **Whole-farm insurance;**
- **Livestock price insurance;**
- **Index-based insurance;**
- **Area-based yield insurance; and**
- **Weather-based index insurance.**

Additional innovative risk management tools – alternatives to insurance include:

- **Self-insurance through preferential savings;**
- **Market-based commodity price risk management instruments;**
- **Weather derivatives;**
- **Insurance securitization; and**
- **Area-yield reinsurance and options.**

Major element of Strategy 2030

Major Research Questions and Issues …

- What is the actual size, structure and preference for farmers demand?
- What crops should be covered?
- Should the scheme be compulsory or voluntary?
- Are data on quantitative losses available? What is the probable magnitude of damages by crops, region and type of hazard?
- Who should implement the scheme? Cooperatives (after reform) or Government Agencies?
- Is there a need for assessment of the technical, operational, and commercial feasibility of applying weather-indexed insurance or derivative products as part of disaster risk management strategies?
- What are the possibilities for intermediation services for weather risk management transactions between the governments and the international market?
- How much should the premiums be? Should the Government subsidize the calculated actuarially during early stages?
- Who should cover the administrative cost?
- Would the scheme be implemented in stages/gradually or in one shot?
- Are there capacity building needs for cooperatives and Government staff, especially in the areas related to agro-meteorology, crop surveillance, and crop estimation systems?
- How to utilize the funds that accrue from insurance payouts, for example, in designing safety net programs that scale up on the basis of payments?

(ii) Commodity Exchanges and Future Options

Futures contracts are becoming widely used risk management measures in developing countries in addition to maintaining a moderate size reserves. Developing countries now account for over one-third of the number of contracts traded. Around one half (9 out of 22) of the leading commodity exchanges are located in developing countries (India, China, Malaysia, Brazil, and South Africa).

Commodity Exchanges have been created in several developing countries (Examples: Romania, Bulgaria, Ukraine, Kazakhstan, Turkey, Kyrgyzstan and Uzbekistan).

An important element of the Strategy 2030 (establishment and practicing in international markets)

Major Research Questions and Issues ….

- **How to quantify specific price risks faced by governments and private sector importers/distributors?**
- **How to assess the technical, and economic feasibility of mitigating price risks through transfer to the market, using financial and physical contracts?**
- **How to enhance the efficiency of General Authority of Supply Commodities GASC based on market-oriented measures?**
- **How could the Government create an enabling environment for more private sector participation? What are the needed policy measures and institutional/ legislation reforms?**
- **Can we design product hedging programme for GASC and/or Private Sector? and**
- **How to assess government role and design appropriate policies for the alternatives of financing premiums on option contracts to cap the cost of future food imports?**

Most Important ……

We need your help…

- **What are the additional research issues needed to deal with the highlighted policy measures?**
- **Are these acceptable research priorities? Any other suggestions?**
- **Are these the right research questions?**
- **Are there missing contribution from other disciplines? [Missing questions? Missing disciplines?]**
- **Which units are the core decision makers for each suggested policy issue to be researched? [Which are the relevant/missing research institute to be considered?]**

Thanks